

LIST OF N. AMERICAN SARCOPHAGIDÆ, EXAMINED BY
R. H. MEADE, ESQ., BRADFORD, ENGLAND.

BY DR. H. A. HAGEN, CAMBRIDGE, MASS.

The Deyrolle carton containing the specimens, which are in the same position as returned by Mr. Meade, bears the inscription by the Baron von Osten-Sacken: "This collection was arranged at my request by Mr. R. H. Meade, especially with a view of ascertaining whether any of the species are common to Europe and N. America." I have published this list for the same reason as the Anthomyidae. The division of the species is so far advanced that not much is left for the future monographer, except to draw up the descriptions and to name the species. Both are not done by myself for obvious reasons. The 27 species with 115 specimens are indeed all the contents of the collection of the Museum and those of the Baron. The Loew's collection contains about 24 species not labeled (except for the 3 species given) nor even arranged after the species. About half of them are from Cuba. My additions are given in []; I have tried to compare the species as carefully as possible, but I should remark that the types of only 12 European species are at hand. Of the species are from N. England 13, from N. York 14, from Canada 7, from the Antilles 5.

SARCOPHAGA.

A. *Anus red or yellow.* (First division.)

B. No spines upon the second longitudinal veins.

C. Posterior tibiae of male bearded on their inner sides.

D. Second abdominal segment without central spines.

E. Thorax with four dorsal bristles behind suture.

Spec. 1. *S. aegra*? Walk.; does not correspond to any British species.

[8 specim. M., male and female, Cambridge, Mass., June 22; Catskill Mts., N. Y., July, 1874, O.S.; Denison, Crawford Co., Iowa; Brit. Amer. In Loew's coll., 4 male and female, Ill.; Minn.; Wisc. Two types from Mo., labeled by O. S. *Sarcophaga sarra-
ceniæ* Riley, which have not been seen by Mr. Meade, are identical; the species was formerly believed to be *S. carnaria* Comstock's Rep. 1879, p. 304.]

E. Thorax with three dorsal bristles behind suture.

Spec. 2. Not like any British *Sarcophaga*.

[10 spec. M., male and female, Cambridge and Dorchester, Mass.; Trenton Falls, July, O.S.; Long Island, O.S., July, Sept.; Manlius, Comstock, all N. York; Canada; Illinois. There are similar specimens in L. coll., but I am not sure of the identity.]

E. Thorax with only two large bristles behind suture.

Spec. 3. Seems identical with *S. nurus* Rond.

[11 spec. M., male and female, Cambridge, Mass.; N. York; Pennsylvania; Canada; Twin Lake, Color., Lieut. Carpenter. In Loew's coll. is at least one specimen labeled *S. dimidiata* from N. Y., bearing the same No., 325, with two seen by Mr. Meade. The number was used by O. S. to identify later specimens sent by him to Loew. One specimen seen by Mr. Meade from Mr. A. Agassiz' collection is labeled *S. georgiana*, and probably to be considered as the species mentioned by Th. W. Harris, as most of Mr. A.'s specimens were determined by him. I can not compare *S. nurus* Rond.]

Spec. 4. Very similar to *S. crustata* Meig.

[2 spec. M., male and female. Nahant, Mass. I cannot identify with them spec. in L. coll.]

Spec. 5. Similar to *S. nurus* Rond., only both anal segments red.

[3 spec., Cambridge, male; Cuba, Ch. Wright, female. In Loew's collect. 3, Distr. Columbia, a number from Cuba marked "viviparous, out of rotten land cray-fish," one fr. Bahia.]

Spec. 6. *S. Lherminieri*? R. Desv.

[One female, M. collect. on a voyage fr. Aspinwall to N. York by W. Holden; loc. incert.]

C. Posterior tibiae of male without beard.

D. Second abdominal segment with two central spines.

E. Thorax with four dorsal bristles behind suture.

Spec. 7. Differs from any British species.

[2 spec. M., one N. Conway, N. H., male, August 17, O. S.; the other marked "doubtful spec.," female, S. Franc., Cala., Holden. I am not able to see the two spines in the centre of the edge of the 2nd segment.]

E. Thorax with three dorsal bristles behind suture.

Spec. 8. Corresponds with *S. erythrura* Mgn.

[2 spec., male and female, M., Cambridge, Mass.; Cayuga Lake, N. Y., Comstock, June 19.]

D. 3. Second abdominal segment without central spines.

E. Thorax with four bristles behind suture.

Spec. 9. Differs from any British species.

[25 spec. M., male and female. Cambridge, Mass.; Long Isl., N. Y., O. S., Manlius, N. Y., Aug. 26, Sept. 28, Comstock, swept from grass, in woods; Fabyan's Nock., N. H., Sept., O. S.; Illinois, Allen; Brit. Amer., Scudd.; Huds. Bay Terr., Kennicott; Pacific Slope, Color., Lieut. Carpenter. In Loew's coll. fr. Illinois, Nebraska.]

Spec. 10. Not like any British species.

[2 spec. M., male and female, Long Island, N. Y.; O.S.]

E. Thorax with three bristles behind suture.

Spec. 11. Differs from all European species.

[7 spec. M., male and female, Cambridge, Mass.; Long Island, Cayuga Lake, May 25; Manlius Sept. 6, all N. Y.]

Spec. 12. Not like any British species.

[3 spec. M., male and female, Manlius, N. Y.; Maryland, Oct. 20; Grand Anse, Hayti, Uhler.]

Spec. 13. Very similar in structure to *S. haematodes* Meig.

[2 spec. M., female, Kentucky.]

E. Thorax with only two large bristles behind suture.

Spec. 14. Not like any British species.

[5 spec. male and female, Dorchester, Mass; Englewood, N. J.; South Park, Colorado; Grand Anse, Hayti.]

Spec. 15. Not like any British species.

[2 spec. M., male, Cuba; Distr. Columbia.]

B. Both second and fourth longitudinal veins of wings with spines.

D. Second abdominal segment without spines.

E. Thorax with four dorsal bristles behind suture.

Spec. 16. Differs from any British species.

[7 spec. M., male and female. Canada; Mass.; Long Island and Manlius, N. Y., end of August.]

E. Thorax with three dorsal bristles behind suture.

Spec. 17. Differs from any British species.

[9 spec. male and female. Cambridge, Mass.; Long Island, N. Y., O. S.; Grand Anse, Hayti, Uhler. The four larger specimens from

Cambridge and New York are *S. pachyprocta* Loew, var. *major*; the other ones from New York and Hayti are *S. pachyprocta* Loew, var. *minor*. The labels in Loew's handwriting are on the pins, and two corresponding specimens with the same numbers and labels in Loew's collection; there are specimens from Cuba and Pennsylvania in L. coll.]

Spec. 18. Not like any British species.

[1 spec. M.; Manlius, N. Y., Aug. 18, Comstock.]

A. Anus black or gray. (Second division.)

B. Second longitudinal veins of wings spineless.

C. Posterior tibiæ of male bearded.

E. Thorax with four dorsal bristles behind suture.

D. Second abdominal segment without central spines.

Spec. 19. Closely resembles *S. similis* Mihi.

[3 spec. M. male and female, Lake Superior, Agassiz; South Park, Color., Lieut. Carpenter. See about this species O. S. Catalogue, p. 257: "I am doubtful whether any of the N. Am. species is absolutely identical with *S. carnaria*, unless it be with *S. similis*, etc." Mr. Meade.

E. Thorax with three bristles behind suture.

Spec. 20. Very similar to female of *S. albiceps* or *S. atropos*.

[1 spec. M., Detroit, Mich., June 3, Hubbard.]

C. Posterior tibiæ of male smooth.

D. Second abdominal segment with two central spines.

Spec. 21. Corresponds closely with *S. juvenis* Rond.

[2 spec., male and female, M.; Manlius, N. Y., Aug. 12, Comstock; Detroit, Mich., July, Hubbard.]

Spec. 22. Corresponds closely with *S. nigriventris* Meig.

[1 spec. M., Sturgeon Isl.; Brit. Amer.; N. Red River; Scudder.]

Spec. 23. Not like any British species.

[1 spec., Cambridge, Mass.]

Genus *Phrissopoda* (Peskia Desv., Meade.)

Spec. 24. *imperialis*? Desv.

[1 spec. M., Cuba; some spec. in L. coll.]

Gen. *Cynomyia* Desv.

Spec. 25. Spec. uncertain.

[1 spec. M., Fabyan House, N. Hampsh. O.S.]

Gen. *Theria* Desv.

Spec. 26, 27; can not name the two species.

[6 spec.; all N. York, Manlius, Aug. 21-27, Sept. 6; Cayuga Lake, June 19; Comstock.]

Family Tachinidae.

Sectio. Phasina.

Gen. *Xysta* Meig.

Spec. 28. One female spec., N. Hampsh.

[This specimen is different from the type of *X. didyma* Loew. The type described was a male from Illinois; the only male in L. coll. with label on the pin has a white square label with an R., similar to those with green square label from Red River of the North. Besides stands a female from Texas, less than half as large; perhaps not belonging here.]

Family Dexidae.

Gen. *Prosenia*.

Spec. 29. One spec. from Cuba. [Differs from Loew's type, *P. mexicana*.]

Genus *Miltogramma* Meig.

Spec. 30. [There are 5 spec. from Cambridge and Dorchester, Mass.; Trenton Falls, N. Y.; Colorado Mts., Carpenter; probably belonging to different species.]

Spec. 31. [*Sarcophaga nudipennis* Loew.; bred from mud cells of *Pelopaeus* by W. H. Patton, Waterbury, Conn., Aug. 24; see Packard's Guide p. 408. One of the spec. by Mr. Meade labeled *Miltogramma* Meig., the other one *Miltogramma?* Meig. There are in Loew's two spec. with corresponding number, and label in his handwriting.]

ON SIMULIUM.

BY DR. H. A. HAGEN, CAMBRIDGE, MASS.

I have received from Mr. H. G. Hubbard some larvæ and pupæ, with the case, labeled as follows: "The *Simulium* larvæ and pupæ were collected on the rocks at the foot of the falls of Michipicotin River, Lake Superior, in shallow pools and gutters of rapid water. There were large patches of rock surface densely covered with either the larvæ or pupæ, so